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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/759,452	01/16/2004	Takuya Tsukagoshi	890050.456	7727
500 7590 07/06/2007 SEED INTELLECTUAL PROPERTY LAW GROUP PLLC 701 FIFTH AVE SUITE 5400 SEATTLE, WA 98104			EXAMINER NGUYEN, LINH THI	
			ART UNIT 2627	PAPER NUMBER
			MAIL DATE 07/06/2007	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

<p align="center"><b>Office Action Summary</b></p>	<b>Application No.</b> 10/759,452	<b>Applicant(s)</b> TSUKAGOSHI, TAKUYA	
	<b>Examiner</b> Linh T. Nguyen	<b>Art Unit</b> 2627	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 09 April 2007.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,3,5-8,10-12,14-16 and 18-22 is/are rejected.
- 7) ☒ Claim(s) 2,4,9,13 and 17 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                  | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 5-8, 10-12, 14-20 and 21, are rejected under 35 U.S.C. 102(b) as being anticipated by Curtis et al (US Patent Number 5719691).

In regards to claims 1 and 5, Curtis et al discloses a holographic recording method for recording information as phase information of light by projecting a signal beam and a reference beam onto a recording medium (column 1, signal beam 26 and reference beam 11), wherein an X direction is defined as the direction of a line of intersection between a plane including the optical axes of the signal beam (Fig. 2; Column 2, lines 32-33) and reference beam (incidence plane) and the recording plane of the recording medium, and the Y direction is defined as the direction of a line lying normal to the incidence plane and intersecting said line of intersection (Fig. 2; Column 2, lines 34-35), comprising steps of; using the reference beam modulated with the first phase code to record a first hologram at a predetermined position (Fig. 1, element 27); and using the reference beam modulated with a second phase code whose pattern is different from that of the first phase code to record at a position shifted in the Y direction a second hologram that partially overlaps the first hologram (Fig. 1, element 29; it is

Art Unit: 2627

inherent that the phase code are different from each other since it store 921 holograms (Column 8, lines 13-17).).

In regards to claim 6, Curtis et al discloses a holographic recording method, wherein the phase codes used in the phase code multiplexing have lower correlation with increasing overlap between two holograms recorded by shift multiplexing in the Y direction (Fig. 2; Column 2, lines 48-50).

In regards to claims 7 and 8, Curtis et al discloses a holographic recording method, wherein orthogonal phase codes are used for holograms adjacent along the Y direction (Fig. 2).

In regards to claims 10, 11 and 12, Curtis et al discloses a holographic recording method, wherein the holograms are recorded along both the X direction and Y direction by shift multiplexing (Fig. 2).

In regards to claims 14, 15, 16, 18, 19 and 20, Curtis et al discloses a holographic recording method in accordance with claim 10, wherein the same phase code is used for holograms recorded along the X direction (Fig. 2 phase codes are used for both X-Y direction).

In regards to claim 21, Curtis et al discloses a holographic recording method in accordance with claim 5, wherein the recording medium is a disk, and the X direction and Y direction are the tracking direction and the radial direction of the disk, respectively (Fig. 2).

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 22 is rejected under 35 U.S.C. 103(a) as being unpatentable over Curtis et al in view of Trisnadi (US Patent Number 5627664).

In regards to claim 22, Curtis discloses a holographic recording device for recording information as phase information of light by projecting a signal beam and a reference beam onto a recording medium (Fig. 2) comprising: a laser beam source (Fig. 2, element 10); a spatial light modulator for generating a signal beam containing information by modulating the intensity of one divided beam (Fig. 1, element 15); a controller for controlling the incidence position of the signal beam and reference beam on the recording medium (Fig. 1); wherein, an X direction is defined as the direction of a line of intersection between an incidence plane including the optical axes of the signal beam and reference beam and the recording plane of the recording medium (Fig. 1), a Y direction is defined as the direction of a line perpendicular to the incidence plane (Fig.

1); the controller records holograms by shift multiplexing at least in the Y direction (Fig. 1, elements 27 and 29); and phase code multiplexing in the X-Y direction (Fig. 2). However, Curtis et al does not disclose a beam splitter, a phase spatial light modulator for generating a reference beam by modulating the phase of the other divided beam with a predetermined phase code.

In the same field of endeavor, Trisnadi discloses a holographic recording device, comprising: a beam splitter (Fig. 1, element 16) for dividing the beam from the laser beam source (Fig. 1), a phase spatial light modulator (Fig. 1A, element 28) for generating a reference beam (Fig. 1A, element 18). At the time of the invention it would have been obvious to a person of ordinary skill in the art to combine Curtis et al holographic recording apparatus to record a hologram using phase spatial light modulator corresponds phase code as Trisnadi suggested. The motivation for doing so would have been to increase storage capacity.

Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Curtis et al in view of Wilson et al (US Patent Number 6697180).

In regards to claim 3, Curtis et al discloses a holographic recording method including a step of using the reference beam modulated with the first phase code (Fig. 1). However, Curtis does not disclose a holographic recording method of recording position shifted to the X direction a fourth hologram that partially overlaps the first hologram.

In the same field of endeavor, Wilson et al discloses a holographic recording method of recording position shifted to the X direction a fourth hologram that partially overlaps the first hologram (Fig. 3A). At the time of the invention it would have been obvious to a person of ordinary skill in the art to combine the holographic recording method of Curtis to also shift the fourth holograms in the X direction as suggested by Wilson. The motivation for doing so would have been to increase the storage capacity.

***Allowable Subject Matter***

Claims 2, 4, 9, 13 and 17 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claim 2:

Curtis et al and Wilson et al disclose a holographic recording method further comprising a step of using the reference beam modulated with a third phase code whose pattern is different from that of the first and second phase codes to record at a position shifted in the Y direction a third hologram that partially overlaps the first and second holograms. **The prior art made of record neither discloses nor suggests the combination of limitations wherein a correlation between the third phase code and the second phase code being set lower than a correlation between the third phase code and the first phase code.** Claims 4, 9, 13, and 17 depends on claim 2, therefore, are allowable if claim 2 is rewritten in independent form.

**Conclusion**

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Linh T. Nguyen whose telephone number is 571-272-5513. The examiner can normally be reached on 8:30am-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wayne Young can be reached on 571-272-4483. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

LN  
June 21, 2007

  
WAYNE YOUNG  
SUPERVISORY PATENT EXAMINER